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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,102	02/27/2004	Satoru Inami	00684.003599	5072
5514	7590	10/10/2006	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			WALSH, RYAN D	
			ART UNIT	PAPER NUMBER
			2852	

DATE MAILED: 10/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/787,102	Applicant(s) INAMI ET AL.	
	Examiner Ryan D. Walsh	Art Unit 2852	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                 | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Priority*

Acknowledgment is made of applicant's claim for foreign priority based on the applications filed in Japan on February 28, 2003. It is noted, however, that applicant has not filed a certified copy of the present application as required by 35 U.S.C. 119(b).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Shinohara et al. (US Pat. # 6,163,663), hereinafter referred to as Shinohara.

Regarding claim 1, Shinohara teaches, "A developing apparatus comprising: a developer carrying member (10) for carrying a developer; a developer regulating member (9), contacted to said developer carrying member, for regulating a thickness of a layer of the developer on said developer carrying member; and a lubricant (Col. 5, Ln. 50-61), provided in a contact portion between said developer carrying member and said developer regulating member in a state of absence of the developer in the contact portion (the lubricant and the developer are two distinct particles, therefore, only one of the particles {at a single moment in time} can be provided in the contact portion between the developer carrying member and the developer regulating member), wherein a charge polarity of said lubricant is opposite to a charge polarity of said

developer, and a weight average particle size of said lubricant is not more than 1/3 of a weight average particle size of said developer (Col. 5, Ln. 65-67)."

Regarding claim 5, Shinohara teaches, "wherein the charge polarity of said developer is negative (Col. 5, Ln. 46), and said lubricant comprises melamine resin material particles (Col. 5, Ln. 63)."

Regarding claim 12, Shinohara teaches, "wherein said developing apparatus is provided in a cartridge detachably mountable to a main assembly of an image forming apparatus (Col. 45, Ln. 11-12)."

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara et al. (US Pat. # 6,163,663) as applied to claim 1 above, in view of Japanese Laid-Open Patent Application (2002-278262).

Regarding claims 2 and 3, Shinohara does not teach, "wherein said lubricant comprises spherical particles having an average circularity not less than 0.90, or wherein said lubricant comprises polymer particle." However, having wherein said lubricant comprises spherical particles having an average circularity not less than 0.90 and is a polymer particle is routine in the art as shown by Japanese Laid-Open Patent Application (2002-278262), as described in the present application (Spec. Page 4, Ln.

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18-22). It would have been obvious to one skilled in the art at the time the invention was made to modify Shinohara to include a lubricant that comprises spherical particles having an average circularity not less than 0.90 and is a polymer particle.

The ordinary artisan would have been motivated to modify Shinohara in a manner described above for at least the purpose of promoting uniform development throughout the entire surface of the developing roller.

Claims 4, 7-8, 13, 16, 18-19, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara et al. (US Pat. # 6,163,663) in view of Mizoe et al. (US Pub. 2003/0152856), hereinafter referred to as Mizoe.

Regarding claims 4 and 13, Shinohara does not teach, "wherein a weight average particle size ( $\mu\text{m}$ ) of said lubricant is smaller than an arithmetic average roughness (Ra) value ( $\mu\text{m}$ ) of a surface of said developer carrying member." However, wherein a weight average particle size ( $\mu\text{m}$ ) of said lubricant is smaller than an arithmetic average roughness (Ra) value ( $\mu\text{m}$ ) of a surface of said developer carrying member is routine in the art as shown by Mizoe ([0296], Ln. 8-13). It would have been obvious to one skilled in the art at the time the invention was made to modify Shinohara to include wherein a weight average particle size ( $\mu\text{m}$ ) of said lubricant is smaller than an arithmetic average roughness (Ra) value ( $\mu\text{m}$ ) of a surface of said developer carrying member.

The ordinary artisan would have been motivated to modify Shinohara in a manner described above for at least the purpose of avoiding scattering incident light by

the dispersed particles on a photoconductive roller or to obtain the desired resistivity on the developing roller.

Regarding claims 7, 8, 18, and 19, Shinohara does not teach, "wherein said lubricant has a weight average particle size of 0.01  $\mu\text{m}$ -1.5  $\mu\text{m}$  or a weight average particle size of 0.01  $\mu\text{m}$  - 3  $\mu\text{m}$ ." However, having a weight average particle size of 0.01  $\mu\text{m}$ -1.5  $\mu\text{m}$  or a weight average particle size of 0.01  $\mu\text{m}$  - 3  $\mu\text{m}$  is routine in the art as shown by Mizoe ([0296], Ln. 8). It would have been obvious to one skilled in the art at the time the invention was made to modify Shinohara to include a lubricant that has a weight average particle size of 0.01  $\mu\text{m}$ -1.5  $\mu\text{m}$  or a weight average particle size of 0.01  $\mu\text{m}$  - 3  $\mu\text{m}$ .

The ordinary artisan would have been motivate to modify Shinohara in a manner described above for at least the purpose of avoiding scattering incident light by the dispersed particles on a photoconductive roller or to obtain the desired resistivity on the developing roller.

Regarding claim 16, Shinohara teaches, "wherein the charge polarity of said developer is negative (Col. 5, Ln. 46), and said lubricant comprises melamine resin material particles (Col. 5, Ln. 63)."

Regarding claim 23, Shinohara teaches, "wherein said developing apparatus is provided in a cartridge detachably mountable to a main assembly of an image forming apparatus (Col. 45, Ln. 11-12)."

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara et al. (US Pat. # 6,163,663) as applied to claim 1 above, in view of Okamoto et al. (US Pat. # 6,391,511), hereinafter referred to as Okamoto.

Regarding claim 6, Shinohara does not teach, "wherein the charge polarity of said developer is positive, and said lubricant comprises fluorine resin material particles." However, the charge polarity of said developer is positive, and said lubricant comprises fluorine resin material particles is routine in the art as shown by Okamoto (Col. 8 Ln. 45-47 and Col. 9, Ln. 8-23). It would have been obvious to one skilled in the art at the time the invention was made to modify Shinohara to include wherein the charge polarity of said developer is positive, and said lubricant comprises fluorine resin material particles.

The ordinary artisan would have been motivated to modify Shinohara in a manner described above for at least the purpose of promoting thermal and oxidation stability within the developing unit.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shinohara et al. (US Pat. # 6,163,663) and Mizoe et al. (US Pub. 2003/0152856) as applied to claim 13 above, and in further view of Okamoto et al. (US Pat. # 6,391,511).

Regarding claim 17, the combination of Shinohara and Mizoe does not teach, "wherein the charge polarity of said developer is positive, and said lubricant comprises fluorine resin material particles." However, the charge polarity of said developer is positive, and said lubricant comprises fluorine resin material particles is routine in the art as shown by Okamoto (Col. 8 Ln. 45-47 and Col. 9, Ln. 8-23). It would have been

obvious to one skilled in the art at the time the invention was made to modify the combination of Shinohara and Mizoe to include wherein the charge polarity of said developer is positive, and said lubricant comprises fluorine resin material particles.

The ordinary artisan would have been motivated to modify the combination of Shinohara and Mizoe in a manner described above for at least the purpose of promoting thermal and oxidation stability within the developing unit.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara et al. (US Pat. # 6,163,663) as applied to claim 1 above, in view of Hare (US Pub. 2004/0157735).

Regarding claims 9 and 10, Shinohara does not teach, "a coating amount of said lubricant on said developer regulating member is 1.5 g/m<sup>2</sup>-15 g/m<sup>2</sup> or a coating amount is 0.18 g/m<sup>2</sup>-1.9 g/m<sup>2</sup>." However, having a coating amount of said lubricant on said developer regulating member is 1.5 g/m<sup>2</sup>-15 g/m<sup>2</sup> or a coating amount is 0.18 g/m<sup>2</sup>-1.9 g/m<sup>2</sup> is routine in the art as shown by Hare ([0084]-[0085]). It would have been obvious to one skilled in the art at the time the invention was made to modify Shinohara to include a coating amount of said lubricant on said developer regulating member is 1.5 g/m<sup>2</sup>-15 g/m<sup>2</sup> or a coating amount is 0.18 g/m<sup>2</sup>-1.9 g/m<sup>2</sup>.

The ordinary artisan would have been motivated to modify Shinohara in a manner described above for at least the purpose of promoting a more effective transfer of toner over the entire surface of a developing device.

Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shinohara et al. (US Pat. # 6,163,663) and Mizoe et al. (US



Pub. 2003/0152856) as applied to claim 13 above, and in further view of Hare (US Pub. 2004/0157735).

Regarding claims 20 and 21, the combination of Shinohara and Mizoe does not teach, "wherein a coating amount of said lubricant on said developer regulating member is 1.5 g/m<sup>2</sup>-15 g/m<sup>2</sup> or a coating amount is 0.18 g/m<sup>2</sup>-1.9 g/m<sup>2</sup>." However, having a coating amount of said lubricant on said developer regulating member is 1.5 g/m<sup>2</sup>-15 g/m<sup>2</sup> or a coating amount is 0.18 g/m<sup>2</sup>-1.9 g/m<sup>2</sup> is routine in the art as shown by Hare ([0084]-[0085]). It would have been obvious to one skilled in the art at the time the invention was made to modify the combination of Shinohara and Mizoe to include a coating amount of said lubricant on said developer regulating member is 1.5 g/m<sup>2</sup>-15 g/m<sup>2</sup> or a coating amount is 0.18 g/m<sup>2</sup>-1.9 g/m<sup>2</sup>.

The ordinary artisan would have been motivated to modify the combination of Shinohara and Mizoe in a manner described above for at least the purpose of promoting a more effective transfer of toner over the entire surface of a developing device.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara et al. (US Pat. # 6,163,663) as applied to claim 1 above, in view of Naka et al. (US Pat. # 6,586,151), hereinafter referred to as Naka.

Regarding claim 11, Shinohara does not teach, "wherein said developer contains not less than 90%, by number base cumulative value, of particles having not less than 3  $\mu$ m corresponding diameters and having not less than 0.900 circularities, and wherein a

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weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp(5.51 \times X^{-0.645})$$

0.950 circularities satisfy:  $(5.0 < X \leq 12.0)$ . " However, having wherein said developer contains not less than 90%, by number base cumulative value, of particles having not less than 3  $\mu$ m corresponding diameters and having not less than 0.900 circularities, and wherein a weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp(5.51 \times X^{-0.645})$$

0.950 circularities satisfy:  $(5.0 < X \leq 12.0)$ . is routine in the art as shown by Naka (Col. 6, Ln. 30-67). It would have been obvious to one skilled in the art at the time the invention was made to modify Shinohara to include wherein said developer contains not less than 90%, by number base cumulative value, of particles having not less than 3  $\mu$ m corresponding diameters and having not less than 0.900 circularities, and wherein a weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp(5.51 \times X^{-0.645})$$

0.950 circularities satisfy:  $(5.0 < X \leq 12.0)$ .

The ordinary artisan would have been motivated to modify Shinohara in a manner described above for at least the purpose of reducing the amount of waste toner with high transferring efficiency between the developing roller and a photoconductive drum.

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shinohara et al. (US Pat. # 6,163,663) and Mizoe et al. (US Pub. 2003/0152856) as applied to claim 13 above, and in further view of Japanese Laid-Open Patent Application (2002-278262).

Regarding claims 14 and 15, Shinohara and Mizoe does not teach, "wherein said lubricant comprises spherical particles having an average circularity not less than 0.90, or wherein said lubricant comprises polymer particle. " However, having wherein said lubricant comprises spherical particles having an average circularity not less than 0.90 and is a polymer particle is routine in the art as shown by Japanese Laid-Open Patent Application (2002-278262), as described in the present application (Spec. Page 4, Ln. 18-22). It would have been obvious to one skilled in the art at the time the invention was made to modify the combination of Shinohara and Mizoe to include a lubricant that comprises spherical particles having an average circularity not less than 0.90 and is a polymer particle.

The ordinary artisan would have been motivated to modify the combination of Shinohara and Mizoe in a manner described above for at least the purpose of promoting uniform development throughout the entire surface of the developing roller.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shinohara et al. (US Pat. # 6,163,663) and Mizoe et al. (US Pub. 2003/0152856) as applied to claim 13 above, and in further view of Naka et al. (US Pat. # 6,586,151).

Regarding claim 22, the combination of Shinohara and Mizoe do not teach, "wherein said developer contains not less than 90%, by number base cumulative value, of particles having not less than 3  $\mu$ m corresponding diameters and having not less than 0.900 circularities, and wherein a weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp 5.51 \times X^{-0.645}$$

0.950 circularities, satisfy:  $(5.0 < X \leq 12.0)$ . " However, having wherein said developer contains not less than 90%, by number base cumulative value, of particles having not less than 3  $\mu$ m corresponding diameters and having not less than 0.900 circularities, and wherein a weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp 5.51 \times X^{-0.645}$$

0.950 circularities satisfy:  $(5.0 < X \leq 12.0)$ . is routine in the art as shown by Naka (Col. 6, Ln. 30-67). It would have been obvious to one skilled in the art at the time the invention was made to modify the combination of Shinohara and Mizoe to include wherein said developer contains not less than 90%, by number base cumulative value, of particles having not less than 3  $\mu$ m corresponding diameters and having not less than 0.900 circularities, and wherein a weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp 5.51 \times X^{-0.645}$$

0.950 circularities satisfy:  $(5.0 < X \leq 12.0)$ .

The ordinary artisan would have been motivated to modify the combination of Shinohara and Mizoe in a manner described above for at least the purpose of reducing the amount of waste toner with high transferring efficiency between the developing roller and a photoconductive drum.

***Response to Arguments***

Applicant's arguments filed 9/14/2006 have been fully considered but they are not persuasive. Applicant amends the claims to recite the feature, "a lubricant, provided in a contact portion between said developer carrying member and said developer regulating member in a state of absence of the developer in the contact portion." The claimed "contact portion" is one distinct point between the developing roller, and the regulating member. The developer and the lubricant are two distinct particles. Therefore, when the lubricant is within the claimed "contact portion", the developer will be "absent" from this position.

Applicants should note: It also would have been obvious to one of ordinary skill in the art at the time the invention was made, to use the lubricant of Shinohara (which is combined with the developer) provided between the developing roller and the regulating member for at least the purpose of protecting the drum from damage during shipping (see JP 2002-278262, where Okano describes using a lubricant for this exact purpose.)

Also, the prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Hiratsuka et al. (US Pub. # 2003/0016955), cited for its teaching of using a lubricant with a polarity opposite to the charge polarity of the toner particles,

which acts as a charging auxiliary agent for the purpose of improving developing performance.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

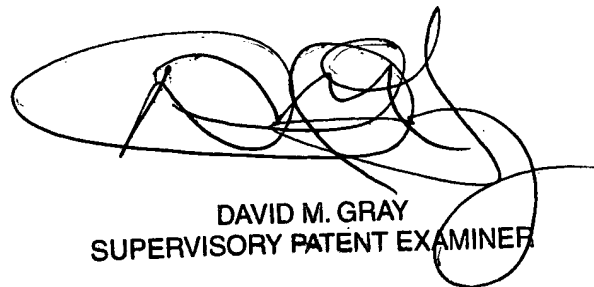
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan D. Walsh whose telephone number is 571-272-2726. The examiner can normally be reached on M-F 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Gray can be reached on 571-272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ryan D. Walsh  
Patent Examiner  
Art Unit 2852



DAVID M. GRAY  
SUPERVISORY PATENT EXAMINER